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PITTSBURGH UNIV PA CENTER FOR MULTIVARIATE ANALYSIS
P R KRISHNAIAH AUG 84 AFOSR-TR-84-0822 AFOSR-83-0226
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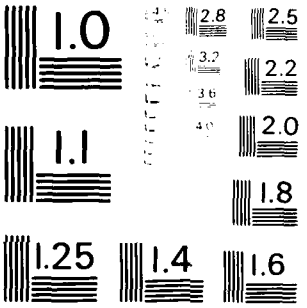
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AD-A145 755

COMPUTER EQUIPMENT FOR RESEARCH IN STATISTICS

Final Scientific Report

Submitted to the

Air Force Office of Scientific Research

by the

Center for Multivariate Analysis

University of Pittsburgh

Grant No. AFOSR 83-0226

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The equipment items that are purchased using the funds of the Grant AFOSR 83-0226 and the cost of the items are given below:

Item	Cost
CPU System	$112,375.00
Computer Shield II	2,350.00
FORTRAN License	2,350.00
PASCAL License	2,250.00
C License	2,250.00
Spinwriter Printer/Terminal & Accessories	4,650.00
3 Send/Receive Hardcopy Terminals *	3,292.50
4 Alphanumeric Video Graphics Terminals w/Country Kits	4,390.00
Regis Graphics Library	1,750.00
Regis Graphics VI Update	425.00
Graphics Plotter	821.25
15 AJ1259 Modems	7,291.80
(Partial) Insurance & Shipping	528.45
TOTAL	144,724.00

The equipment that is acquired under the grant will be used in support of the research in the areas of mathematical statistics and applied probability, computational statistics and modern data analysis, statistical signal processing, reliability and quality assurance, stochastic processes and time series analysis, simulation methodology, statistical methods in target tracking, and robust statistical methods. Brief descriptions of some specific areas of research are as follows:

* There is a delay by the vendor in the delivery of one of the terminals, although it was ordered by June 14, 1984. The above item is expected to arrive in September, 1984. All other equipment items are in operation.

1. Multivariate Analysis and Its Applications

The research involves development of new methodology in the areas of classification, cluster analysis, multivariate regression analysis, principal component analysis, canonical correlation analysis, factor analysis and some other areas of multivariate analysis. The work would involve computation of many multivariate distributions, extensive simulations to study the properties of various procedures for estimation and testing.

2. Techniques of Data Analysis in Flight Control Problems

In the area of research on flight control, several statistical problems arise. For example, it is of interest to find out as to which keyboards are better in the cockpit of the aircraft from the point of view of optimizing the performance of the pilots. Simultaneous test procedures are useful in solving the above problems. It is planned to investigate relative merits of various simultaneous test procedures. The proposed research would involve simulations and computations of some distributions.

3. Pattern Recognition

It is planned to do research in developing methodology useful in the area of pattern recognition and develop software to implement some of the methodology. It is also planned to compare the advantages and disadvantages of certain methods of pattern recognition. The

methodology of pattern recognition will be applied to such areas like fault diagnosis, medical diagnosis, signal detection, speech recognition, image processing, etc. The above work involves extensive use of the computer equipment.

4. Reliability and Quality Assurance

Research in the area of reliability and quality assurance involves development of reliability algorithms, optimum component testing procedures for system reliability demonstration, propagation of uncertainties, simulation methodology, optimization techniques, development of multivariate distributions and techniques useful for studying the reliability of multicomponent and multistate systems. The above work involves use of the computer equipment since it involves simulations, computations of various distributions and development of software for implementation of some methodology.

Work in the area of multivariate analysis and its applications using the computer equipment obtained under the grant is in progress.

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SECURITY CLASSIFICATION OF THIS PAGE

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FIELD	GROUP	SUB GR	

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

This grant purchased computer equipment to support basic research in multivariate analysis at the University of Pittsburgh. Some of the research areas to be supported by this equipment include the development of new methodology in multivariate analysis, techniques of data analysis in flight control problems, pattern recognition, and reliability and quality assurance.

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